INSTRUCTION MANUAL

EVER®
POWER SYSTEMS

INSTRUCTION MANUAL
POWERLINE RT

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PRODUCT INTRODUCTION

HOW IT WORKS

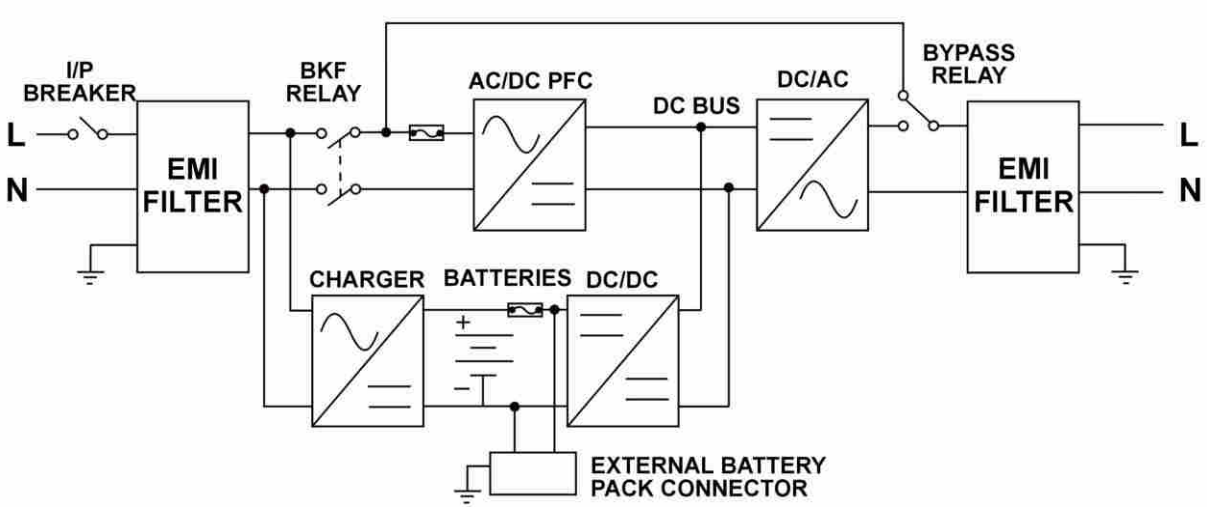


Fig.1: Block diagram

● A series of double-conversion on-line topology UPS, which provides excellent protection for the connected receivers, such as computer systems, by filtrating disruptions on the receiver's power supply line. AC input can be adjusted depending on the grid voltage waveform; it is a high-power factor system. PWM control ensures that output voltage can have an undisrupted and stable waveform.

● If the power grid parameters are incorrect, the driver will stop the AC/DC section and launch the DC/DC section immediately to ensure uninterrupted work of the DC/AC section (inverter). When the power grid parameters are back to regular, the DC/DC section will stop and the AC/DC will resume its work. This ensures that the receiver is uninterruptedly supplied with power by the inverter if the UPS is on.

● The UPS ensures an internal bypass to allow the receivers to obtain power grid input when the UPS is damaged.

● The UPS is fitted with an internal battery charger, which recharges the battery when the grid parameters are acceptable, with the exception of the "backup mode", or "battery testing mode".

MODE DESCRIPTION

● Stand-by mode

The UPS is deactivated, output disconnected (no power supply).

● Bypass mode

The bypass mode means that the UPS provides power supply to the receiver directly through the internal bypass, without regulation. If the driver detects incorrect power supply parameters, the output is disconnected and the UPS goes into the bypass mode to protect the receiver. The user can enforce the bypass mode using buttons on the front panel. In the bypass mode, most UPS settings can be changed with the panel or communication software.

● Power grid mode

In the power grid mode, the input current is rectified/converted by the AC/DC section, and then converted into stable output current by the DC/AC section, supplying the current to the receivers. If the grid parameters become incorrect, the UPS uninterruptedly switches to the backup mode.

● Backup mode

In the backup mode, power supply from the battery goes through the DC/DC section to the inverter (DC/AC), where stable output voltage is generated. If the grid parameters go back to normal, the UPS uninterruptedly switches to the grid mode.

● Frequency conversion mode

UPS may be used as a frequency converter, providing 50 Hz or 60 Hz at the output (depending on the choice), on the condition that the frequency of the input current is within 40 – 70 Hz.

If the device operates in the frequency conversion mode, the available supply power is reduced by 50%. This means that only 50% of the UPS rated power can be used when the device is in this mode.

If the device is used as a frequency converter, the ECO mode cannot be activated, and the bypass mode cannot be used.

	NOTE: The frequency conversion mode can be switched on/off only when the device is in the standby mode.

● ECO mode

When the ECO mode is one and the grid supply parameters are within the tolerance, the output is supplied with power directly from the input, using the internal bypass. The device in this mode is highly efficient while saving the energy. When the ECO mode is on and the grid supply parameters are not within the tolerance, the device automatically begins to supply power to the receiver using the inverter.

If the UPS is in the ECO mode, the internal battery charger is working.

● Error mode

If there is an internal error in the UPS and it is necessary to switch off the inverter, the UPS switches to the error mode, producing a sound, and the relevant message on the LCD panel is displayed. In the error mode, there is a risk of losing the power supply by receivers, because the output voltage will be generated through the bypass only after the error is actually encountered by the UPS.

● Extra functions

a) Green Power function (energy saving mode) If the device is in the backup mode and no receiver is connected to the output, or the load is smaller than the predefined threshold (see table of parameters), the UPS will switch off automatically after five minutes in order to save the battery and energy.

b) Cold Start – if the function is switched on, it is possible to start the UPS without power supplied from the grid, and the receiver is supplied directly from the battery.

	NOTE: If the UPS is started for the first time, AC power supply must be connected.

c) Automatic restart - if the function is switched on, after the autonomous power supply time has lapsed, the device automatically starts when the grid power supply resumes. If it doesn't, it is necessary to start the device manually.

NOTE: if the function is activated and a failure of power supply occurs immediately after the automatic start of the device, the autonomous power supply time will be short, because the batteries have not been fully charged.

d) The battery test can be performed in two ways: manually or automatically, with a fixed break between the tests.

e) Controlled outputs: the UPS is provided with two groups of controlled output sockets (output 1 and output 2). Each group can be configured so that it automatically switches off when the battery charging status drops below a specific value (75%, 50%, 25% or 0%), or on the user's demand.

	NOTE: It is recommended that key devices should be connected to the main outputs, and less important ones to the controlled outputs.

f) Remote control - there are terminals on the rear panel of the UPS which enable the user to switch on/off the device remotely (ROO), or switch off the device remotely without the automatic restart option (EPO).

g) Compatibility with power generators – the UPS can work with most power generators available on the market.

SYMBOLS USED

Some or all of the symbols below may be used in this instruction manual. It is recommended that the user is familiar with the symbols and their meanings.

Table 1. Symbols

SYMBOL AND EXPLANATION			
SYMBOL	EXPLANATION	SYMBOL	EXPLANATION
	ALERT YOU TO PAY SPECIAL ATTENCION		ALTERNATING CURRENT SOURCE (AC)
	CAUTION OF HIGH VOLTAGE		DIRECT CURRENT SOURCE (DC)
	TURN ON THE UPS		PROTECTIVE GROUND
	TURN OFF THE UPS		RECYCLE
	IDLE OR SHUT DOWN THE UPS		DO NOT DISPOSE WITH ORDINARY TRASH

INSTRUCTIONS ABOUT FRONT PANEL INDICATORS

Control panel

There are several switches and LED indicators on the front panel, which notify the operator of the current UPS status and options to change the UPS mode:

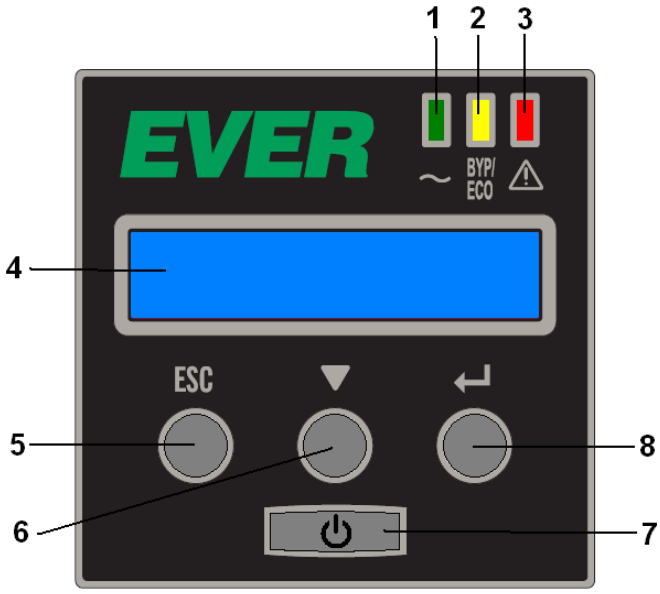


Fig. 2: Front panel

1) Green LED diode - ~
means that input voltage is available.

2) Amber LED diode - BYP/ ECO

Bypass and ECO mode indication, as well as indication of warnings, which are also displayed on the LCD display, e.g. when there is overload

3) Red LED diode - ⚠

It indicates the most critical messages relating to the device's work, such as: short circuit, internal error

4) LCD display

5) Exit button - ESC

6) Forward button - ▼

7) ON/OFF button/Backup mode LED diode (green button light)

8) Confirm button - ↵

Table 2. Description of diodes

LED diode number	1	2	3	7
Standby mode - correct input power	●			
Standby mode - no correct input power				
Bypass mode (output connected)	●	●		
Power grid mode	●			●
Backup mode				●
ECO mode	●	●		
Critical error mode			●	

● Continuous light

Menu and functions

Functions available in the menu and submenu are explained below.

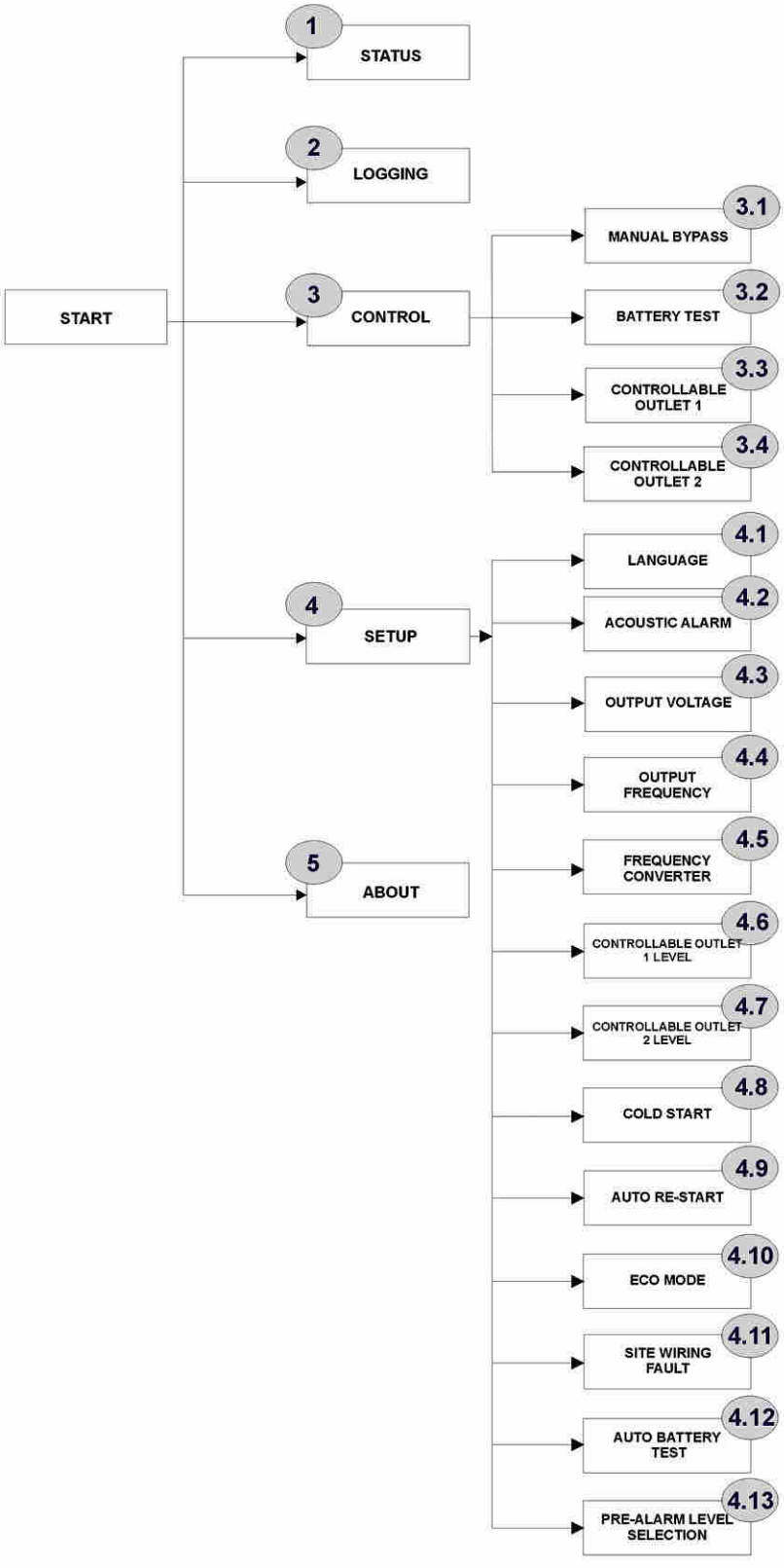


Fig.3: Menu

INFORMATION SCREEN
Function
Displays the current working mode, messages about warnings and errors

MENU 1.- STATUS
Function
Displays input and output values (voltages, frequency, load...)

MENU 2.- LOGGING		
Function		
Displays five most recent events (errors, warnings...)		
1	EPO RELEASE	UPS stopped working, because EPO was activated (remote power supply off)
2	BATT. ERROR CALL SERVICE	Battery error detected
3	OVERLOAD CHECK OUTPUT	Inverter overload detected (grid power or backup mode)
4	BYPASS OVERLOAD OUTPUT UNPROTECT.	Overload detected when the device is in the bypass mode.
5	FAN ERROR	Fan failure detected
6	CHARGER TOO HIGH VOLT.	The charger supplies too high voltage (internal error)
7	DC BUS TOO HIGH VOLT.	DC voltage in the DC bus is too high (internal error)
8	DC BUS TOO LOW VOLT.	DC voltage in the DC bus is too low (internal error)
9	DC BUS UNSTABLE	DC voltage in the DC bus is unstable (internal error)
10	INVERTER TOO HIGH VOLT.	The inverter supplies too high voltage (internal error)
11	INTERVERT TOO LOW VOLT.	The inverter supplies too low voltage (internal error)
12	SHORT CIRCUIT CHECK OUTPUT	Inverter short circuit (internal error)
13	PHASE ERROR CHECK AC INPUT	Reverse input lead sequence detected
14	OVERHEAT REDUCE TEMP.	Device overheated
15	NO EVENTS	No events in the register

The LCD displays shows five most recent events. They are numbered from 1 to 5, where 1 is most recent, and 5 oldest event. Event 1 is displayed as first, and events from 2 to 5 are displayed when the forward button is pushed. After displaying the event type, the next screen tells you when it occurred relative to the device's working time. This is not a calendar date. The time follows the format: DDDD:HH:MM:SS, where DDDD is the consecutive day of the device's work, HH – hours, MM – minutes, SS – seconds. The next screen is the next event.

MENU 3.- CONTROL		
Submenu		***Function***
3.1	BATTERY TEST	After selecting this option, the battery test is performed
3.2	MANUAL BYPASS	UPS switching to the bypass mode and back
3.3	CONTROLLABLE OUTLET 1	Activation/deactivation of output group 1 (first group of controlled output sockets)
3.4	CONTROLLABLE OUTLET 2	Activation/deactivation of output group 2 (second group of controlled output sockets)

MENU 4.- SETUP		
Submenu		***Function***
4.1	LANGUAGE	Language selection (English, Spanish, Italian, French, Polish, Portuguese, German)
4.2	ACUSTIC ALARM	Sound alarm activation/deactivation (buzzer)
4.3	OUTPUT VOLTAGE	Selection of rated output voltage (200 V, 208 V, 220 V, 230 V or 240 V)
4.4	OUTPUT FREQUENCY	Selection of rated output frequency: 50 or 60 Hz (only in the frequency conversion mode)
4.5.	FREQUENCY CONVERTER	Activation/deactivation of frequency conversion mode (UPS must be in the standby mode)
4.6	CONTROLLABLE OUTLET 1 LEVEL	Selection of the battery charging level (75%, 50%, 25% or 0%) below which output 1 (first group of controlled output sockets) is deactivated automatically
4.7	CONTROLLABLE OUTLET 2 LEVEL	Selection of the battery charging level (75%, 50%, 25% or 0%) below which output 2 (second group of controlled output sockets) is deactivated automatically
4.8	COLD START	Activation/deactivation of cold start function (start without grid power supply)
4.9	AUTO RE-START	Activation/deactivation of automatic restart function (automatic start after the autonomy time has lapsed, when the grid power supply resumes).
4.10	ECO MODE	ECO mode activation/deactivation
4.11	SITE WIRING FAULT	Phase detection function activation/deactivation (detection of incorrect input lead sequence)
4.12	AUTO BATTERY TEST	Selection of the automatic battery test frequency (every day, every week, every month...)
4.13	PRE-ALARM LEVEL SELECTION	Selection of the battery charging level (75%, 50%, 25% or 0%) below which Battery low signal is activated

MENU 5.- ABOUT
Function
Displays rated power of the UPS, software version and UPS working time

REAR PANEL

POWERLINE RT 1000

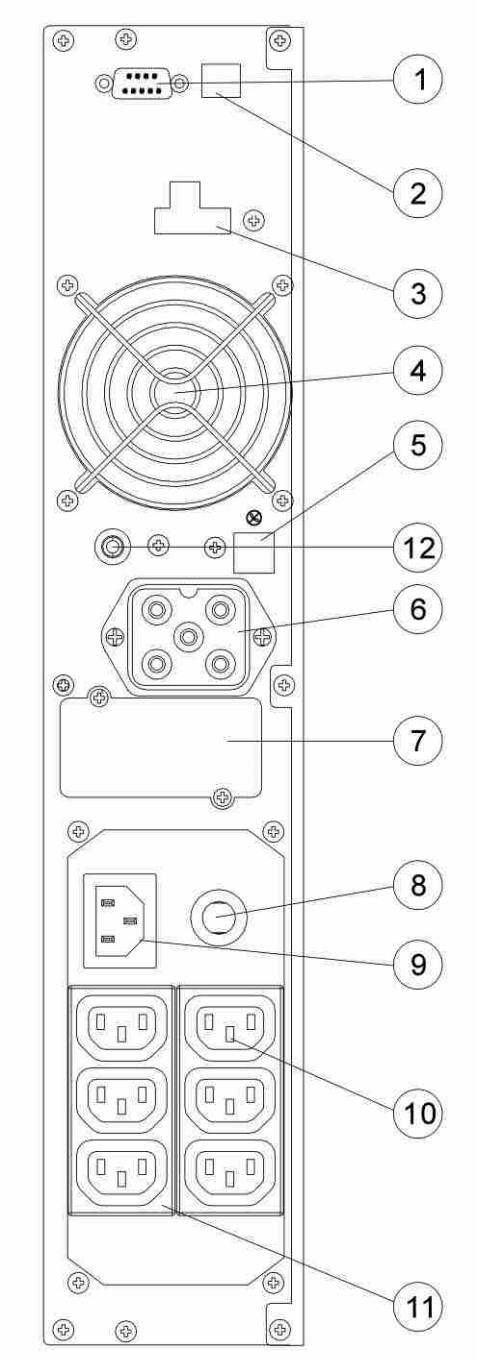


Fig.4: Rear panel

1) RS232 port
2) USB port
3) ROO/EPO terminals
4) Fan
5) RJ11 port – battery module detection
6) Supply interface to connect an external battery pack
7) SNMP card socket
8) Input circuit protection – automatic fuse
9) Power supply input socket
10) Non-controlled output sockets
11) Controlled output sockets (group 1 and 2)
12) Earthing bolt

POWERLINE RT 2000

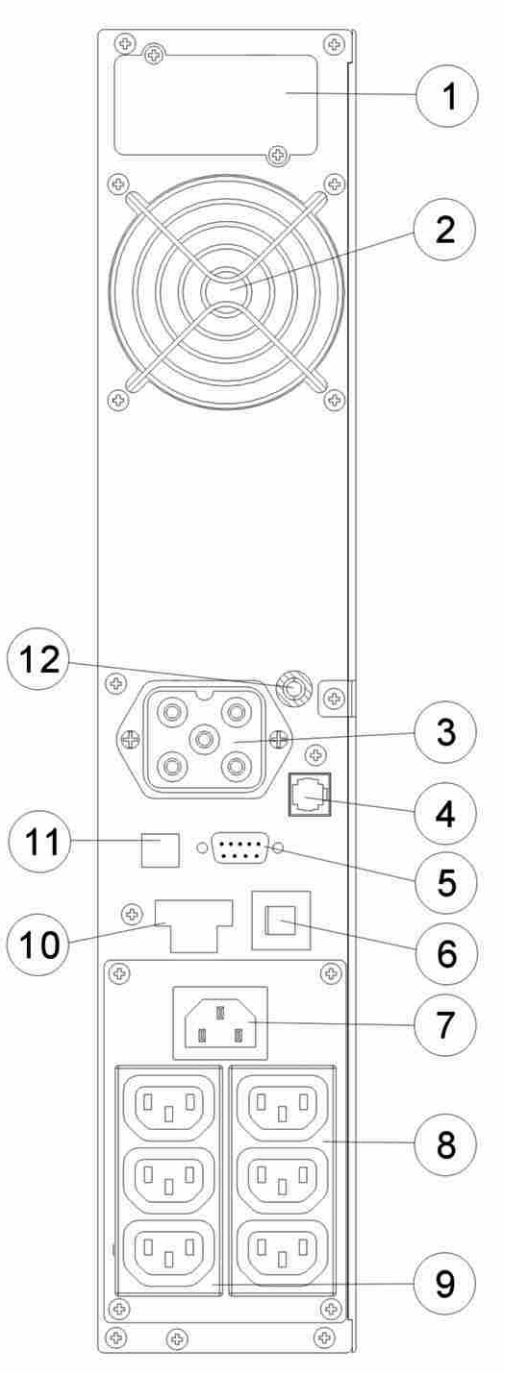


Fig.5: Rear panel

1) SNMP card socket
2) Fan
3) Supply interface to connect an external battery pack
4) RJ11 port – battery module detection
5) RS232 port
6) Input circuit protection – automatic fuse
7) Power supply input socket
8) Non-controlled output sockets
9) Controlled output sockets (group 1 and 2)
10) ROO/EPO terminals
11) USB port
12) Earthing bolt

POWERLINE RT 3000

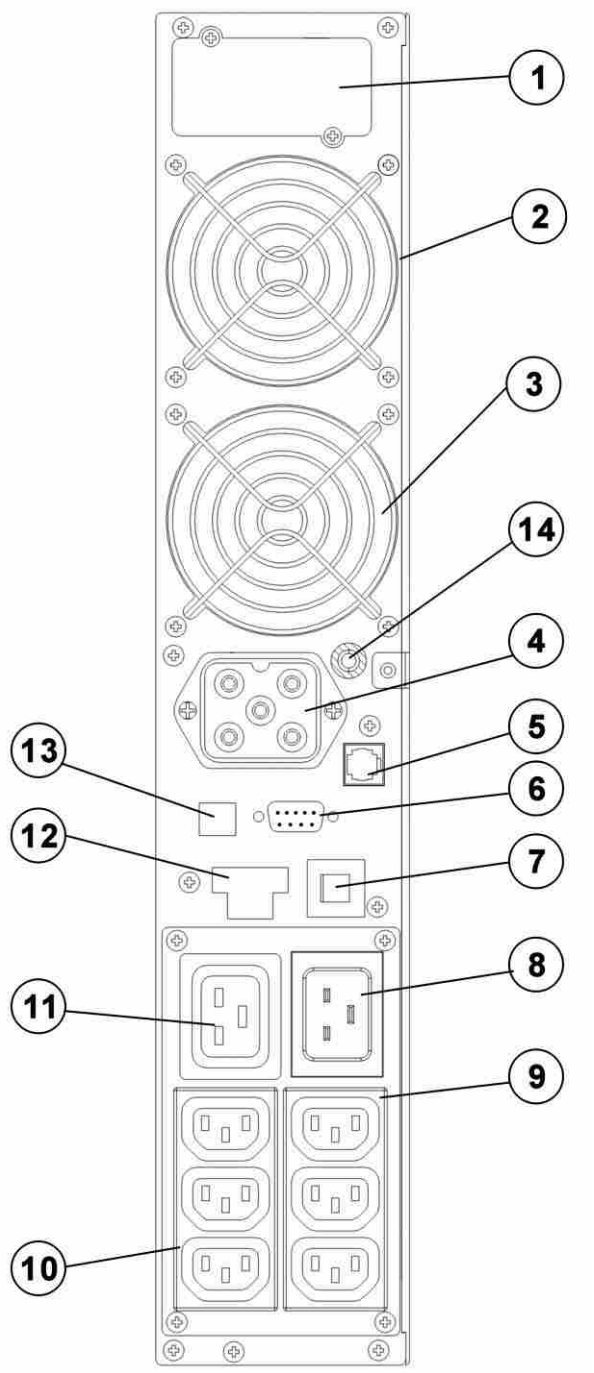


Fig.6: Rear panel

1) SNMP card socket
2) Fan
3) Fan
4) Supply interface to connect an external battery pack
5) RJ11 port – battery module detection
6) RS232 port
7) Input circuit protection – automatic fuse
8) Power supply input socket
9) Non-controlled 16A output sockets
10) Controlled 10A output sockets (group 1 and 2)
11) 16A output sockets
12) ROO/EPO terminals
13) USB port
14) Earthing bolt

POWERLINE RT 1000 BATTERY PACK

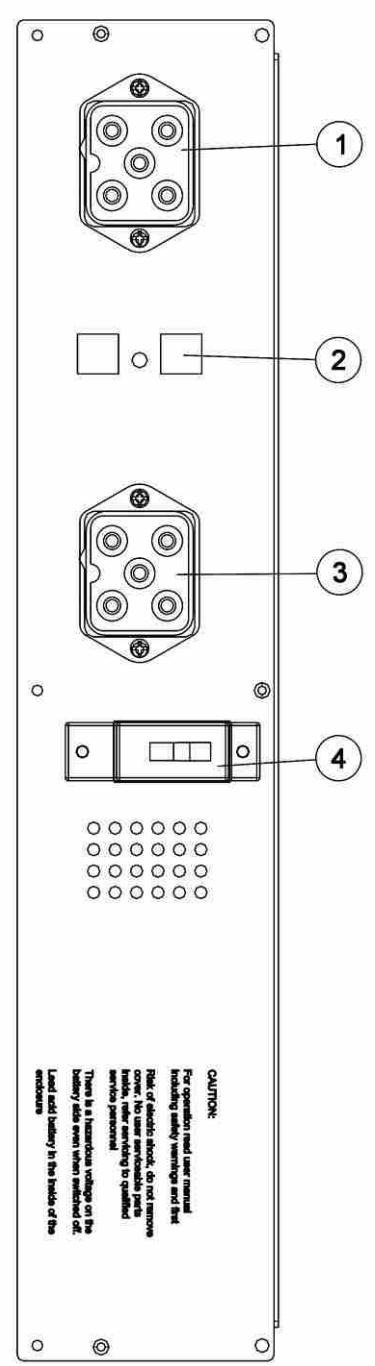
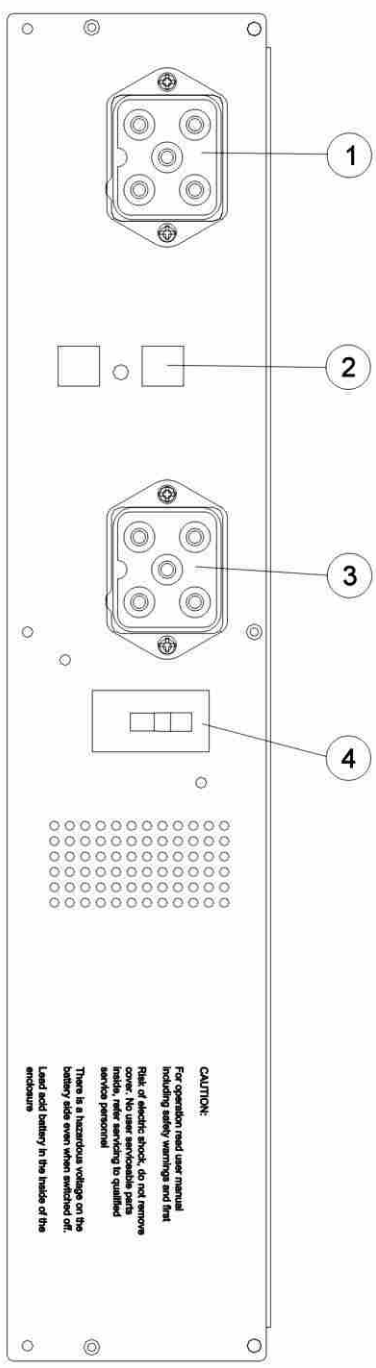

1
2
3
4
CAUTION:
For operation read user manual including safety warnings and first
Risk of electric shock, do not remove cover. No user serviceable parts inside, refer servicing to qualified service personnel
There is a hazardous voltage on the battery side even when switched off.
Lead acid battery in the inside of the enclosure

Fig.7: Rear panel

1) Battery pack power supply interface
2) RJ11 port - signal lead
3) Battery pack power supply interface
4) Current protection

POWERLINE RT 2000/3000 BATTERY PACK


1
2
3
4
CAUTION:
For operation read user manual including safety warnings and first
Risk of electric shock, do not remove cover. No user serviceable parts inside, refer servicing to qualified service personnel
There is a hazardous voltage on the battery side even when switched off.
Lead acid battery in the inside of the enclosure

1) Battery pack power supply interface
2) RJ11 port - signal lead
3) Battery pack power supply interface
4) Current protection

Fig. 8: Rear panel

PRODUCT SPECIFICATIONS

Table 3. Technical parameters

PARAMETERS / MODEL	POWERLINE RT 1000	POWERLINE RT 2000	POWERLINE RT 3000
Output power [1)]	1000 VA / 800 W	2000 VA / 1600 W	3000 VA / 2400 W
Casing	Rack / Tower (Rack Kit optionally available)		
Topology	Double conversion VFI		
Intended application	Backup for IT devices		
INPUT			
Rated input voltage	200 - 240 VAC		
Input voltage operating range	120 – 275 VAC (depending on the load)	140 – 275 VAC (depending on the load)	
Rated input frequency	50 / 60 Hz		
Input frequency operating range	40 / 70 Hz (input-output synchronisation range: 50 / 60 Hz ± 5%		
Power factor	0.99 (batteries charged)		
OUTPUT			
Voltage waveform	Sine		
Rated output voltage	200 (*) / 208 (*) / 220 / 230 VAC (default) / 240 V (configured using user software and LCD display)		
Voltage regulation	2 %		
Ouput frequency	50 / 60 Hz ± 0.5 % (same as for the input or selected in the frequency conversion mode)		
Harmonic distortion (THDV) (linear/non-linear receiver)	≤ 4 % / ≤ 6 %		
Switching time (grid-backup-grid)	0 ms		
Overload range (network power mode for the load having PF=0.8)	< 110 % warning 111-135 %: 12 seconds (UPS switching to bypass mode) > 135 %: 1.5 second (UPS off)		
Short circuit protection	Yes		
GREENPOWER function activation threshold	< 45 W		
BATTERIES			
Type	Sealed, maintenance-free, lead-acid (VRLA)		
Configuration	1 x 3 x 9 Ah	1 x 6 x 9 Ah	1 x 6 x 9 Ah
Support time with internal batteries only (100% / 80% / 50% P_{max})	7 / 10 / 17,5 min	7 / 10 / 17,5 min	3 / 5 / 10,5 min
Support time with battery modul (100% / 80% / 50% P_{max})	27 / 35 / 60 min	27 / 35 / 60 min	17,5 / 22 / 38 min
Advanced battery control	Yes		
Battery management	Automatic battery pack detection, automatic autonomy time calculation, deep discharge protection		
GENERAL INFORMATION			
Bypass mode	Yes (automatic)		
Grid mode efficiency	86%	88%	90%
ECO mode efficiency	> 93%		
Maximum noise level at a distance of 1 metre	41 dB	47 dB	47 dB
Variable fan speed	Yes		
Option to connect external battery packs	Yes (maximum 4 pcs)		
CONNECTION			
Communication ports	1 x DB9 (RS 232), 1 x USB (**)		
Communication socket	1 x socket for SNMP / TCP-IP / Web interface or for voltage-less contact card		
Remote power supply off (EPO)	Yes (EPO contact)		
Remote on/off	Yes (ROO contact)		
ENVIRONMENT			
Operating temperature [2)]	0 ÷ 40 ºC		
Storage temperature	-25 ÷ 50 ºC (without batteries)		

	-15 ÷ 40 ºC (with batteries)		
Altitude (above sea level) [3]	0 - 3000 m		
Relative humidity when working	< 95 % (without condensation)		
Relative humidity during storage	< 95 % (without condensation)		
MECHANICAL PARAMETERS			
Dimensions W x H x D	438 x 86 (2U) x 483 mm	438 x 86 (2U) x 658 mm	438 x 86 (2U) x 658 mm
Rack cabinet deepth	≤ 800 mm		
Weight	18.5 kg	30.5 kg	31 kg
CONNECTIONS			
Input	1 x IEC320 C14 (10 A)		1 x IEC320 C20 (16 A)
Output	6 x IEC320 C13 (10 A), of which 3 are controlled (2 groups)		6 x IEC320 C13 (10 A), of which 3 are controlled (2 groups) 1 x IEC320 C19 (16 A)
STANDARDS			
CE mark	Yes		
Safety	EN 62040-1, EN 60950 (RD)		
EMC	IEC62040-2 C2, IEC61000-3-2, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5 IEC61000-4-6, IEC61000-4-8, IEC61000-4-11, IEC61000-2-2		
Efficiency	EN62040-3		

Note: The manufacturer reserves the right to change the abovementioned parameters without notice.

(*) For 200V output rated voltage, the output power is reduced by 20%. For 208 V output rated voltage, the output power is reduced by 10%.

(**) The ports cannot be used simultaneously.

Notes:

1) For normal operation of the battery back-up the load connected to its output should not exceed 80% of value indicated in the table. Reserve power is essential to ensure continuous operation of connected devices in case of momentary rushes in load current.

2) Continued exposure of the battery back-up to the temperature of the surrounding exceeding +25℃ will shorten the life of batteries.

3) If the altitude above sea level increases beyond the provided limit the permitted load power of the batter back-up decreases.

Battery packs

Table 4 Technical parameters

PARAMETERS / MODEL	BATTERY PACK POWERLINE RT 1000	BATTERY PACK POWERLINE RT 2000/3000
Casing	Rack / Tower (Rack Kit optionally available)	
Battery configuration	2 x 3 x 9 Ah	2 x 6 x 9 Ah
Protection	70 A / 80 VDC fuse	70 A / 80 VDC fuse
MECHANICAL PARAMETERS		
Dimensions W x H x D	438 x 86 (2U) x 438 mm	438 x 86 (2U) x 657 mm
Rack cabinet deepth	≤ 800 mm	
Weight	32 kg	52 kg
ENVIRONMENT		
Operating temperature [1]	0 ÷ 40 ºC	
Storage temperature	-15 ÷ 40 ºC	
Altitude (above sea level)	0-3000 m	
Relative humidity when working	< 95% (without condensation)	
Relative humidity during storage	< 95% (without condensation)	

Note: The manufacturer reserves the right to change the abovementioned parameters without notice.

Note:

[1] Continued exposure of the battery back-up to the temperature of the surrounding exceeding +25℃ will shorten the life of batteries.

[2] If the altitude above sea level increases beyond the provided limit the permitted load power of the batter back-up decreases.

Communication

The UPS is fitted with various communication interfaces, including the RS232 and USB serial interface, as well as the communication interface socket. Using those interfaces, users can establish direct communication between the UPS and the duty server, configure the UPS as a network client with centralised monitoring using the Manage UPS SNMP adapter fitted in the interface socket, as well as report UPS statuses to external systems.

●RS232 port and status indication

Table 5. Matching of contacts and description of DB-9 interface:

Terminal number	Definition
4	Not connected
2	RXD (input)
3	TXD (output)
5	GND
1	Battery low
6	Grid power parameters out of range
7	Bypass mode
8	SUM alert
9	Grid power parameters correct

●USB port

The USB port is compatible with the USB 1.1 protocol

NOTE: RS232 and USB ports cannot be used simultaneously

●Interface socket

Various cards can be connected to the interface socket. Interfaces, marks and codes in the socket may vary depending on the interface card used. A detailed description is attached to the interface cards available as accessories.

Available interface cards:

- SNMP adapter card (Manage UPS) to integrate the UPS with the network (option)
- AS400 card. (option)

●Winpower

Free software download – WinPower

WinPower is the latest UPS monitoring software, which ensures user-friendly interface for UPS monitoring and control. This exceptional piece of software ensures safe and automatic disconnection of multiple-computer systems in the case of power supply failure. Using this software, users can monitor and control each UPS in the same LAN network, regardless of the distance from the UPS.

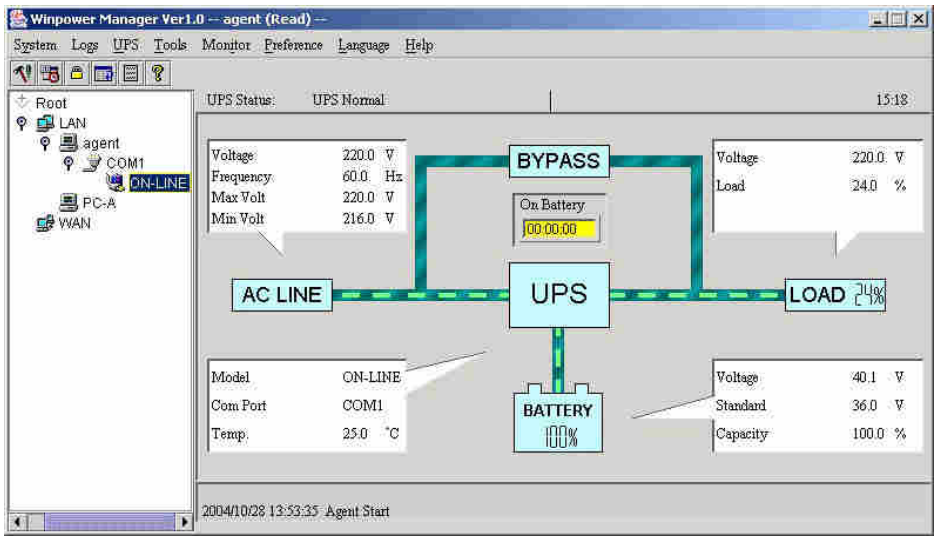


Fig. 9:*Winpower manager, version* 1.0

Installation procedure:

1. Go to the webpage: http://www.ups-software-download.com/winpower.htm.

2. Select the required operating system and follow the instruction described on the webpage to download the software.

3. When downloading the required files from the Internet, enter the following serial number: **511C1-01220-0100-478DF2A** to install the software.

After restarting the computer, WinPower software appears as a green socket icon in the system tray, next to the clock.

4. Software installation can also be performed using the supplied CD.

INSTALLATION

SAFETY DURING INSTALLATION

	You must read the following safety information prior to installation!

	NOTE! The UPS is completely disconnected from the power grid only when the power supply cord is disconnected.

● Installation personnel

	NOTE! The UPS should be connected by qualified and authorised personnel only.

● Installation environment

	NOTE! This product is intended for commercial and industrial use in the second environment. To prevent disruptions, it may be necessary to apply additional preventive measures or limitations.

	NOTE! The UPS must not be installed or operated whenever water vapour condensation occurs, which can take place if the UPS is taken directly from a cold into a warm environment. The UPS must remain completely dry prior to installation and operation. The time needed to adapt to the new environment before the installation proceeds should be at least 2 hours**.** Otherwise there is a risk of electrocution!

	NOTE! Do not install the UPS in damp environments, next to sources or heat or whenever it is exposed to direct sunlight. Make sure that the UPS is kept away from water, flammable gases and corrosion agents.

	NOTE! The device should be installed in well-ventilated places. Do not cover ventilation openings in the UPS casing, keep the relevant distances from other objects to ensure appropriate air circulations.

● Cabling and earthing

	NOTE! The installation and cable laying should proceed in compliance with local laws and regulations.

	NOTE! The UPS must be earthed. Prior to connecting power supply cables to the electric system terminal on the premises, make sure that the earthing connection is reliable. If external UPS battery packs are connected, the main equipotential connection with the main UPS unit is provided by the packs' power supply cables.

	NOTE! The installation must enable disconnection from the grid power supply pointe .g. through circuit breakers.

	NOTE! In order to ensure that receivers can be disconnected from the UPS at any time, emergency breaker should be installed between the UPS output terminals and receivers. To enhance your safety, this can be an RCD device.

● Battery

	NOTE! When serially connecting several battery packs, adhere to the "same voltage, same type" rule.

UNPACKING AND CONTROL

After unpacking, check the contents of the package. The package should include:

CONTENTS OF THE PACKAGES

The packages contain:

a) UPS POWERLINE RT 1000, 2000:

- UPS unit,
- 2 sets of tower bases for vertical installation,
- 1 x power supply cord - CEE7/7 - IEC 320 C13, 10A,
- 3 x power supply cord IEC C13 - IEC C14 10A,
- 1 x USB cable,
- 1 x RS232 cable,
- CD with WinPower software,
- warranty card,
- operation manual.

b) UPS POWERLINE RT 3000:

- UPS unit,
- 2 sets of tower bases for vertical installation,
- 1 x power supply cord CEE 7/7 - IEC 320 C19, 16A,
- 2 x power supply cord IEC C13 - IEC C14 10A,
- 1 x power supply cord IEC C19 - IEC C20 16A,
- 1 x USB cable,
- 1 x RS232 cable,
- CD with WinPower software,
- warranty card,
- operation manual.

c) Rack Kit set for UPS/battery pack Rack-type installation (optional)

- set of items for Rack-type installation:
- 2 front braces for rack-type UPS installation and the required assembly tools,
- 2 slides for rack-type UPS installation (along with and angles and screws),
- printed, pictorial instruction manual for UPS/battery pack installation in the rack, and LCD panel rotation-to-level instruction.

d) SNMP card:

- SNMP card,
- 1 x RJ cable - RS232,
- CD with software,
- warranty card,

e) POWERLINE RT 1000 & 2000/3000 battery pack:

- 1 battery pack,
- 1 power connection cable,
- 1 battery pack detection cable for automatic detection of connected packs (RJ11),
- 2 sets of tower bases for vertical installation,
- binding element to join a battery pack to another battery pack or UPS,
- warranty card.

Inspect the UPS and battery pack visually to make sure there it was not damaged in transport.

INSTALLATION

The UPS and battery packs can be installed in a rack with depth up to 800 mm. For rack-type installation, the Rack Kit assembly set is necessary (optional accessories). The kit contains an instruction manual and a description of how to change the LCD panel’s position. In the standard version, the UPS is provided as a tower version (vertical).

UPS and external battery pack vertical installation

1) Install two sets of tower bases supplied with the UPS and place the device between the bases as shown on the pictures.

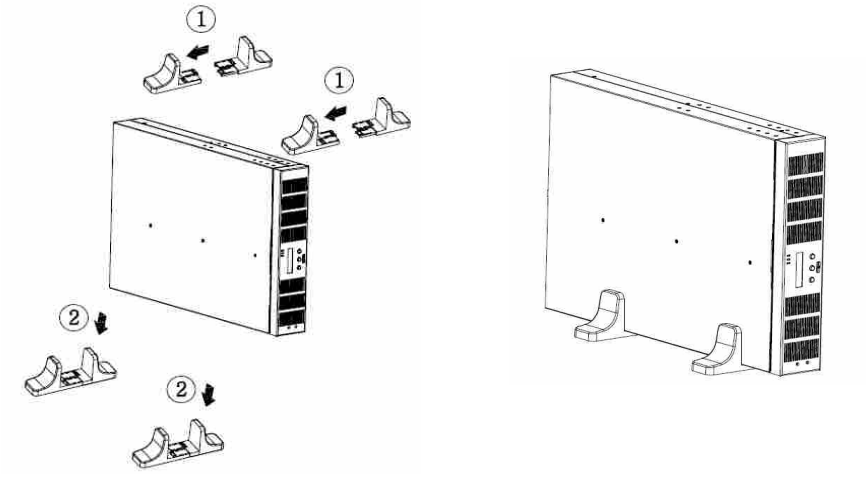


Fig.10: Vertical installation of the UPS

The UPS unit can be mounted in horizontal position. For the necessary information, see User manual – quick start included in the product packaging.

2) UPS Plus mounting with an external battery pack

Install two sets of tower bases with the spacer supplied with the UPS and place the device between the bases as shown on the picture. Then secure the UPS and the battery pack with the supplied plates and screws.

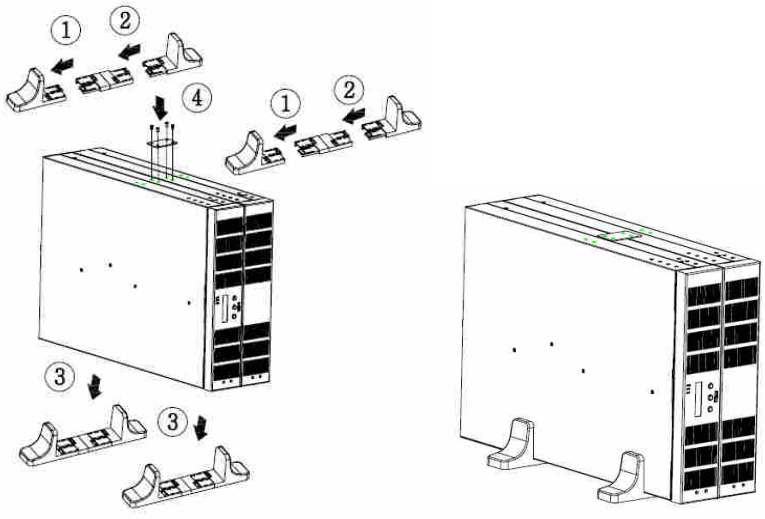


Fig.11: UPS Plus connection to an external battery pack

POWER SUPPLY CONNECTION

Connecting an external battery pack

	WARNING! Prior to connecting a battery pack to the UPS, circuit protection of the pack must be in "OFF". After establishing the electric connection with the UPS, the protection should be switched to "ON".

NOTE: Each battery pack comes with two battery connections. The first pack is connected to the UPS with a cable supplied with the UPS set. Each subsequent battery pack is connected to the previous pack using with the battery pack cable.

External battery packs (if used) should be connected to the UPS prior to its connection to the power grid.

Follow the procedure below to connect external battery packs:

1.Set battery pack circuit protection (in each pack) to "OFF"

2.Make the connection between the pack and the UPS with the cable supplied.

3.Connect another battery pack to the already connected pack.

4.Make a "chain" of battery packs until you connect the last pack.

5.Connect the battery pack detection cable between the RJ11 port on the UPS rear panel and the RJ11 port on the back panel of the first battery pack.

6.Connect the module detection cable between one RJ11 port on the back panel of the first pack with one RJ11 port on the back panel of another pack.

7.Make a "chain" of battery packs using battery pack detection cables until you connect the last pack.

8.Set battery pack circuit protection (in each pack) to "ON"

When all external battery packs are connected, make the necessary power supply output/input connections as described below.

UPS power connection

1.Connect the input power supply cord to the AC input.

NOTE: Batteries are being charged from the moment when the input power supply is provided.

2.Connect a receiver to the UPS. It is recommended that key devices should be connected to the main outputs, and less important ones to the controlled outputs.

	NOTE: You can select disconnection threshold for controlled output sockets using the control panel. This helps to save energy for top-priority receivers.

3. To start the UPS and external battery packs when all the connections are made, following the instructions in the subsequent chapter (operation).

OPERATION

	NOTE: UPS intended to provide backup for IT devices.

SAFE OPERATION INSTRUCTIONS

	NOTE: You must read the following safety information prior to operation of the device!

● Warnings about operation

	NOTE! The UPS is completely disconnected from the power grid only when the power supply cord is disconnected.

	NOTE: Never disconnect the earthing cable at the UPS device or on terminals of the building wiring, because this will remove the earthing connection used to protect the UPS system and all receivers connected to it.

	NOTE: UPS output sockets may be live even when the UPS system is not connected to the power grid.

	NOTE: Prevent the ingress of liquids and foreign bodies into the UPS.

	NOTE: In case of electrocution or fire threat, immediately disconnect the UPS from the power supply line and set circuit protection of the battery packs to "OFF".

	NOTE: UPS output sockets are live when the power switch on the front panel is in "ON" position (On/Off LED is lit).

	NOTE! As required by the standards, the cords may not be longer than, respectively: output cords – 10 metres, communication cables - 3 metres, battery pack power cables – 3 metres.

STARTING THE UPS

Initial UPS start procedure

1) When using the UPS for the first time, make sure that power from the grid is connected, and then press and hold the On/Off button until you hear a beep.
2) The UPS will respond with several sound messages, and the GRID MODE message, along with the UPS load indication will appear on the LCD. The connected receivers are power-supplied.

Regular UPS start procedure

1) Press and hold the On/Off button until you hear a beep.
2) The UPS will respond with several sound messages, and LED's will light up.
3) If AC grid is connected, the green LED (1) on the UPS lights up. GRID MODE message will appear on the LCD, which means output sockets are power-supplied.
4) If there is no input power (green LED is not on), and the cold start function is on, the backup mode LED will light up on the UPS, indicating that the device is drawing power from the battery. BACKUP MODE message will appear on the LCD along with the expected autonomous supply time.

	NOTE: If the OVERLOAD message is displayed on the panel, this means that too many devices are connected to the UPS. If only one device is connected to the UPS and OVERLOAD appears on the display, then the power demand of the receiver exceeds the UPS power supply range, and a UPS with greater rated power must be used.

	NOTE: If the UPS does not respond as described above, go to chapter 5 ("Troubleshooting").

BYPASS MODE PROCEDURES

In order to set the device to "bypass" mode, go to menu 3 (CONTROL) and then submenu BYPASS SWITCH, and select "SWITCH TO BYPASS", or press the confirm button, keeping it pressed for six seconds. Follow the same procedure for the UPS to return to the grid mode, this time selecting SWITCH TO GRID. If the UPS is in the standby or frequency conversion mode, switching to the bypass mode is not possible.

ECO MODE PROCEDURE

If the device is off, but connected to the grid, go to menu 4 (SETTINGS), and then to the submenu ECO MODE and select ECO ON. After the UPS is started, it will launch in the ECO mode.

FREQUENCY CONVERTER MODE PROCEDURE

The frequency converter can be switched on if the UPS is in the standby mode. To activate the frequency conversion mode, go to menu 4 (SETTINGS), and then to the submenu FREQ. CONVERSION and select FREQ. CONVERSION ON. After the UPS is started, it will launch in the frequency conversion mode.

⚠	**NOTE:** In the frequency conversion mode, the available supply power of the UPS is reduced by 50%. This means that only 50% of the UPS' rated power can be used when the device is in this mode.

UPS STOP PROCEDURE

Press and hold the On/Off button until the it goes into standby mode and then disconnect the power line. The UPS will disconnect all outputs and switch off.

REMOTE POWER SUPPLY OFF (EPO) / REMOTE ON/OFF (ROO)

Three-output connector for EPO/ROO circuits is on the rear panel of the device - see picture.

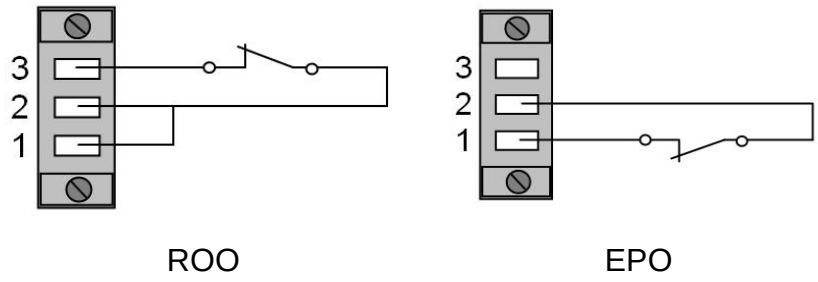


Fig.12: Remote UPS on/off diagrams

The UPS comes with factory-installed jumper connecting outputs 1 and 2. These outputs must be joined in order for the device to operate properly.

In order to use the remote power off (EPO), remove the jumper and join outputs 1 and 2 using a standard volt-free closed contact. If the contact is open, the UPS will switch off. In order to resume regular work, close the contact and restart the device, following the procedure described previously.

In order to use the remote on function (RPO), join outputs 1 and 2 with the jumper (UPS comes with factory-made jumper) and then joint outputs 2 and 3 using a standard volt-free closed contact. Opening of the contact will switch the UPS off. Closing of the contact will restart the UPS and supply power to the connected receivers.

BATTERY MAINTENANCE

CLEANING

Scrubbing powders or solvents must not be used to clean the UPS.

Do not let any liquid ingress into the UPS.

Make sure that the ventilation openings on the UPS are not covered. Remove dust from the ventilation openings using a vacuum cleaner.

The UPS casing should be cleaned from outside by wiping it with a dry or moist cloth.

UPS STORAGE

If the UPS is stored over a longer period in the ambient temperature in excess of 25ºC, the batteries should be charged for five hours, every four months. If the ambient temperature in the storage location is higher, it is recommended that storage time is shortened to two months.

You do not need to unpack the device to charge the batteries. The UPS should be simply connected with a cord to the power grid, using special openings in the packaging, and the batteries should be charged for about five hours. After charging, the charging date should be entered on the UPS packaging.

BATTERY TESTING

Thee UPS does not require maintenance by the user, however the batteries should be periodically inspected.

The UPS automatically performs battery auto test once a week. If a problem appears, the error LED will light up, or an error message will be displayed on the LCD.

Testing frequency can be changed using the control panel or user software. The option BATTERY TEST DAILY, WEEKLY, MONTHLY, or OFF should be selected from the submenu AUTOMATIC BATTERY TEST in the SETTINGS menu.

BATTERY REPLACEMENT

	NOTE: Receivers connected to the UPS will not be protected against input power loss during the operation.

External UPS battery pack replacement

The UPS does not require user maintenance, although maintenance according to IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications (IEEE Standard 1188-1996) is recommended. If the batteries run out, personnel trained on battery operation should replace them.

The replacement is performed in the maintenance access area.

The battery maintenance should be ensured or supervised by personnel familiar with battery operation, using the appropriate precautions.

During the replacement, the same type and quantity of batteries, or battery sets, should be used.

	WARNING! Protect the batteries against fire – explosive!

	WARNING! Do not open the batteries, and protect them against damage. Spilt electrolyte is harmful to the eyes and skin, and could be toxic.

	WARNING! The battery set may pose a risk of electrocution.

	WARNING! The battery is not isolated from power supply lines. Dangerous voltage may appear between the battery terminals and earthing point.

When working with batteries, the following precautions should be applied:

- Take off watches, rings and other metal objects.
- Use tools with insulated handles.
- Put on rubber gloves and footwear.
- Do not place tools or metal parts on batteries.
- Power source should be disconnected prior to connecting or disconnecting battery terminals.

A typical battery lifespan is from 3 to 5 years in the ambient temperature of 25ºC. Nevertheless, battery lifespan also depends on the frequency and duration of grid power failures and periods in which the batteries are discharged.

After the end of the battery's useful life, follow the battery replacement procedure.

The battery test should be performed periodically (every 6 to 12 months) in order to check general battery performance.

In order to replace the internal batteries, manually set the UPS to the bypass mode (see "Bypass mode procedures" and follow the sequence of actions shown on the pictures:

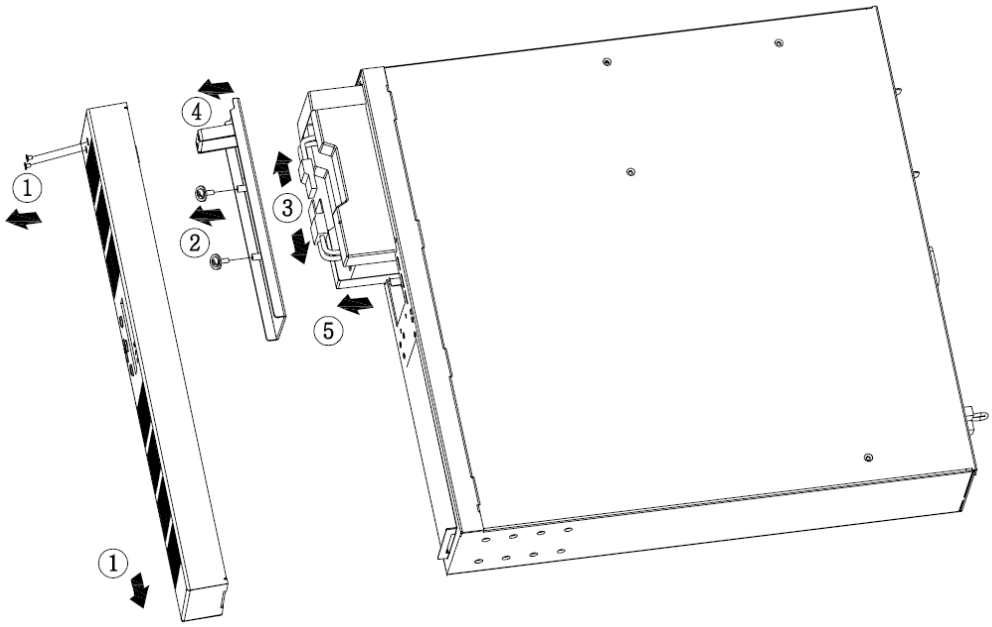


Fig.13: POWERLINE RT 1000

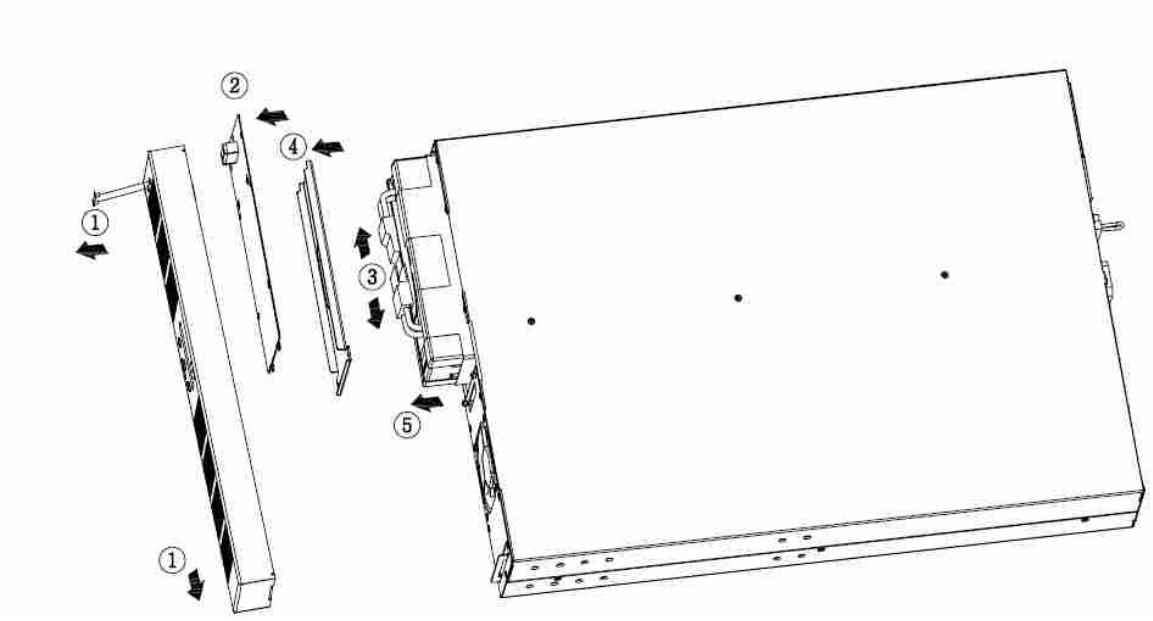


Fig.14: POWERLINE RT 2000/3000

Battery disposal

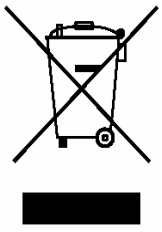
Disposal/recycling of the UPS and/or batteries should be handled by a company certified in disposal/recycling. Used rechargeable batteries are classified as "dangerous toxic waste" and, under the law, must be disposed of or recycled by an authorised recycling centre.

The manufacturer's service centre is fully equipped to handle such batteries in compliance with the law and paying utmost attention to environmental protection. Contact the customer service representative to arrange for battery maintenance and/or replacement.

After the battery replacement, the certified disposing/recycling company must dispose of/recycle the used batteries.

The appropriate utilisation of used electric and electronic equipment helps protect human health and the natural environment against the negative effects brought about by the presence of hazardous materials and components, and the improper storage and processing of such equipment.

Act of 29 July 2005, on Waste Electric and Electronic Equipment, Article 22.1, Point 1.2.



The crossed out waste container symbol means that, in the European Union, a used product should be handed over to a special waste handling outlet. This concerns both the device itself, and all the accessories marked with this symbol. Such products should not be disposed of together with unsorted municipal waste.

TROUBLESHOOTING

Although the UPS is highly reliable, certain problems may appear, and users are advised to check whether they match the descriptions of most common problems and how to solve them below:

a) is there correct supply voltage at the UPS input,

b) Is the input fuse damaged? Did battery pack fuses switch off automatically?

Table 6. Recommendations

Problem	Possible cause	Corrective measures
No recommendation No alarm sound (UPS off)	Grid power switched off	Switch on the grid power switch
	No grid power voltage	Order grid power inspection from a qualified electrician
	Burnt input fuse or circuit protection automatically switched off	Replace with a fuse of the same type, or switch on circuit protection. If the problem persists, contact the appropriate customer service representative
Overload message on the LCD display Receiver connected	Overload error: UPS is overloaded	Check the value of the current supplied by the receivers. Reduce the number of the connected receivers. Restart the UPS
A battery error message is displayed on the LCD.	Battery error detected during the automatic battery test	Inspect if the battery connector is properly connected. Replace the battery pack
Battery error LED flashes/long sound signal approx. every hour	Battery lifespan is ending, battery duty time is reduced	Switch off the alarm by pressing the ESC button for 3 seconds Replace the battery pack
An internal error message is displayed on the LCD.	UPS error	Contact the authorised customer service representative
Overheat error message is displayed on the LCD.	Overheating	Reduce the ambient temperature
Autonomous power supply time shorter than in the specifications	Battery pack protection is set to "OFF"	Set battery pack protection to "ON"
	Batteries are not fully charged	Charge up the batteries and test their duty time in the backup mode. If the problem persists, contact the customer service representative.
	Batteries are damaged	Contact the customer service representative
	The charger is damaged	Contact the customer service representative
Communication error between the UPS and a computer	Incorrect serial connection cable	Check whether the correct cable was used
	Computer interface is used by another process or is damaged.	Check whether other software/service has access to the computer interface, try to select another serial interface
	Disruptions on data cable	Relay the cable/reinstall the cabling

TRANSPORT AND STORAGE

The UPS should be transported only in the original packaging.

The UPS should be stored in a ventilated and dry place.

LAWS, REGULATIONS AND THE WARRANTY

DECLARATION OF CONFORMITY

The UPS structure complies with the provisions of the pertinent standards.

WARRANTY

The warranty for the device constitutes a separate document enclosed with the product. This document must meet all the formal requirements (e.g. the following field should be filled in: manufacturing number, model/type, date of sale, and stamp of the seller).

The manufacturer has made every effort to ensure that the offered products are free of defects in materials and workmanship. The liability of the company under the warranty is limited to the repair or replacement of products containing such defects. The method for removal of defects shall be determined by the manufacturer. The warranty shall not cover those appliances with mechanical damage that were improperly maintained or used, or that were modified in any way by the user.

EVER Sp. z o.o. does not provide any guarantees or warranties, including the guarantees of fitness for sale or for any specific purpose, other than what is set out in the warranty card.

EVER Sp. z o.o. shall not be liable for any direct, indirect, extraordinary, coincidental, or consequential losses resulting from the use of the power supply unit, even if the possible occurrence of such losses has been notified. The company shall not be held liable for any costs, such as the loss of profits or earnings, equipment, equipment usage, software, data, costs of replacement products, claims of third parties, or for any other costs whatsoever.

Information on warranty and post-warranty repairs as well as other maintenance services, as well as this instruction in English, Czech and Slovak can be obtained on our website at www.ever.eu.